EOSDIS

NASA'S EARTH OBSERVING SYSTEM
DATA AND INFORMATION SYSTEM

Service Gateway PI-5

Abdul Khan

6/15/17

EGI support for WCS

- Feature:
  - Ensure users of programmatic access can access services using WCS parameters
- Objective:
  - Perform a trade study to define a server side UI/UX driven architecture that enables users to retrieve processed data
- Implementation:
  - Developing WCS 2.0 technology in EGI

EOSDIS

Trade Study Progress

- Research into previous studies
  - Table with feature comparison
- Table of processing options
- 2.0 GetCapabilities working in EGI
- Testing with QGIS WCS 2.0 plugin.

EOSDIS

WCS 1.1 support for ArcGIS

- Feature:
  - Ensure users of programmatic access can access services using WCS parameters
- Objective:
  - Develop support for WCS 1.1 requests from ArcGIS clients for MOD10A1 as a proof of concept, in the EDF accessible from NSIDC and remote developers
- Implementation:
  - Integrated OGC JAXB classes into EGI in order to support the WCS 1.1 protocols.

EOSDIS

Progress towards WCS 1.1 ArcGIS support

- Successfully opened up firewall in the EDF for a windows machine running ArcGIS client to connect with EGI.

- Procuring and shipping windows with ArcGIS to William Valencia for increased efficiency of develop/test iterations.

- Integrated OGC JAXB classes into EGI from WCS 1.1 with successful integration with QGIS.

- Setting up meeting with ESRI to address inconsistencies / incompatibilities with ArcGIS and OGC JAXB implementation of WCS to help resolve remaining issues with EGI support of ArcGIS WCS requests.

EOSDIS

Subscriptions for Services (S4S)

- Feature:
  - Update SDPS to enable data services for subscriptions prior to delivery

- Objective:
  - Develop prototype to enable subscriptions for services (S4S)

- Implementation:
  - Implementing full featured S4S solution

S4S Milestones

- Held review of capabilities necessary for phase 1 with significant input from NISDC
- Met with EDSC group to determine if this feature could fit into the EDSC workflow
- Put together wiki for a design review
- Implemented server using cloud technology
- Implemented new screen in DA GUI for management of subscriptions
- Implementing EDSC feature to allow users to turn request for data into subscriptions for future data

EOSDIS

View Subscriptions in the DA GUI

| Collection Configuration | Service Configuration | Projection Configuration | Resampling Type Configuration | Application Configuration | Monitor | Subscription Management | Logout |

View Subscriptions

Filter by subscriber email (text), filter by date (range), or clear filter to show all subscriptions.

Filter Pattern: [ ]   Date-Range Start: [6/1/2017 ▼] Date-Range End: [6/15/2017 ▼] (eg. 11/1/11; 11-1-2011; 2011-11-1; Nov 1 2011)

[Filter]   [Clear Filter]

ID	Subscriber Email	Date Created	CMR Query	Processing Options	Frequency
ef99ace0-506e-11e7-b621-d10e2b5fb121	slav.korolev@nasa.gov	2017-06-13T23:31:45.454Z	short_name=GLAH08	FORMAT=TABULAR_ASCII&SUBSET_DATA_LAYERS=%2FData_40HZ%2FDS_UTCTime_40%252C%2FData_40HZ%2FFRCloudLayer%2Fr_FRcld_grd%252C%2FData_40HZ%2FGeolocation	30000
eb0cad00-4c84-11e7-b621-d10e2b5fb121	michael.a.brown-2@nasa.gov	2017-06-08T23:59:02.096Z	short_name=AE_Land	FORMAT=TABULAR_ASCII&INCLUDE_META=Y&INTERPOLATION=CC&SUBSET_DATA_LAYERS=%2FData_40HZ%2FDS_UTCTime_40%252C%2FData_40HZ%2FFRCloudLayer%2Fr_FRcld_grd%252C%2FData_40HZ%2FGeolocation	100000
7fc18930-4c89-11e7-b621-d10e2b5fb121	sudha.murthy@nasa.gov	2017-06-09T00:31:49.571Z	short_name=SPL2SMP	FORMAT=PNG&BBOX=65,30,85,40&SUBSET_DATA_LAYERS=%2FSoil_Moisture_Retrieval_Data%2Fsurface_temperature	25200
1880ffe0-4c88-11e7-b621-d10e2b5fb121	derrick.d.clarke@raytheon.com	2017-06-09T00:21:46.846Z	short_name=SPL3FTA	FORMAT=GeoTIFF&PROJECTION=GEOGRAPHIC	65535
03f3ef20-4c8c-11e7-b621-d10e2b5fb121	abdul.g.khan@nasa.gov	2017-06-09T00:49:50.354Z	short_name=MOD10CM	FORMAT=GeoTIFF	3600

[Add New Subscription] [Edit Selected Subscription] [Cancel Selected Subscription]

Subscription Processing Options

Subscriber Email		Fulfillment Frequency		CMR Query		
Service Agent		Bounding Box		Format		Projection
Resample Type		Include Metadata		Interpolation Method		
Subset Data Layers						

![EOSDIS]

8

Filter by email or date range

View Subscriptions

Filter by subscriber email (text), filter by date (range), or clear filter to show all subscriptions.

Filter Pattern: brown   Date-Range Start: 6/14/2017 ▼ Date-Range End: 6/15/2017 ▼ (eg. 11/1/11; 11-1-2011; 2011-11-1; Nov 1 2011)

[Filter]   [Clear Filter]

ID	Subscriber Email	Date Created	CMR Query	Processing Options	Frequency
19a6fa60-514b-11e7-b621-d10e2b5fb121	michael.a.brown-2@nasa.gov	2017-06-15T01:47:45.286Z	short_name=ATL01	INCLUDE_META=N& SUBSET_DATA_LAYERS=%2Fsc1%2Fdelta_time%252C%2Fsc1%2Fraw_acs_time_sec%252C%2Fsc1%2Fraw_sc_time_1pps_sec%252C%2Fsc1%2Fhk%2Fraw_at_det_p%252C%2Fsc1%2Fhk%2Fraw_at_heater_1_c%252C%2Fquality_assessment	50400
744d87b0-5149-11e7-b621-d10e2b5fb121	michael.a.brown-2@nasa.gov	2017-06-15T01:35:58.378Z	short_name=AE_Land	FORMAT=GdalNetCDF&INTERPOLATION=NN	7828723

[Add New Subscription] [Edit Selected Subscription] [Cancel Selected Subscription]

Subscription Processing Options

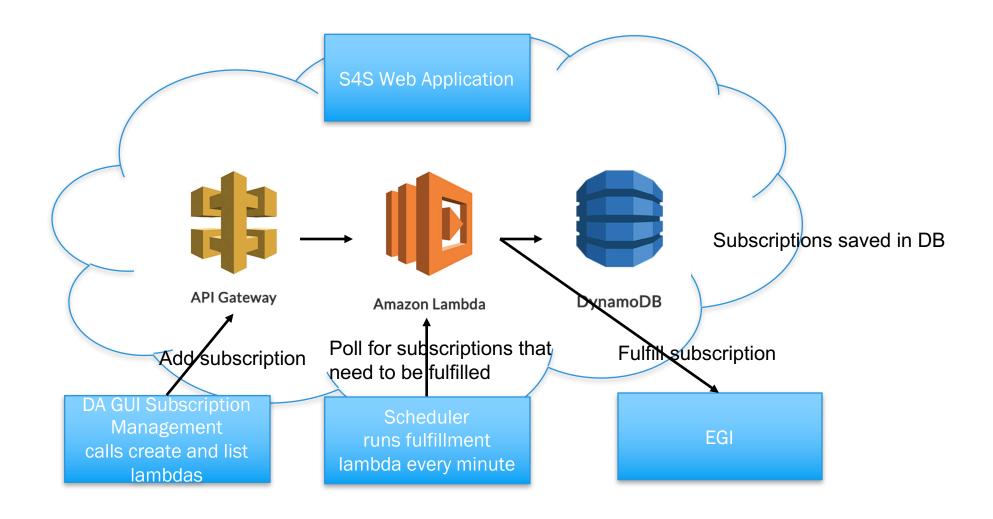| Subscriber Email	michael.a.brown-2@nasa.g	Fulfillment Frequency	50400	CMR Query	short_name=ATL01		
Service Agent		Bounding Box		Format		Projection	
Resample Type		Include Metadata	N	Interpolation Method			
Subset Data Layers	/sc1/delta_time,/sc1/raw_acs_time_sec,/sc1/raw_sc_time_1pps_sec,/sc1/hk/raw_at_det_p,/sc1/hk/raw_at_heater_1_c,/quality_assessment						

EOSDIS

Adding Subscriptions

High Level Architecture

S4S Web Application

API Gateway

Amazon Lambda

DynamoDB

Subscriptions saved in DB

Add subscription

Poll for subscriptions that need to be fulfilled

Fulfill subscription

DA GUI Subscription Management calls create and list lambdas

Scheduler runs fulfillment lambda every minute

EGI

EOSDIS

Cloud deployable on-prem app

SERVER⚡LESS
serverless component

node js
emulated on localhost

serverless–offline
(Serverless plugin)

Allows invocation of lambda with embedded API Gateway

DynamoDB Local
(Java Application)

Saves user subscriptions for viewing and fulfillment

serverless-offline scheduler
(Serverless plugin)

Polls DynamoDB for subscriptions and calls EGI for end user

AWS Lambda
Scheduled Events

EOSDIS